

Quanterra Incorporated 13715 Rider Trail North Earth City, Missouri 63045

314 298-8566 Telephone 314 298-8757 Fax

CASE NARRATIVE

0053052

Bechtel Hanford Incorporated 3350 George Washington Way Richland, Washington 99352

March 28, 2000

Attention: Joan Kessner

EDMC

Ouote Number

SDG

Number of Samples

Sample Matrix Data Deliverable

Date SDG Closed

34636 W03069

four (4) Solid Summary

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February 29, 2000

II. Introduction

On February 16, 2000, four (4) "solid" samples were received by Quanterra. Richland and transferred to Quanterra, St. Louis for chemical analysis. The samples were received at the St. Louis lab within the temperature criteria. Limited sample volume was provided due to the high radiation levels of the samples. The samples were consumed before all analyses were performed. Additional volume was received on 3/20/00 at the St. Louis lab. See the attached Sample Summary for a listing of Client Ids and their associated Lab numbers.

III. Analytical Results/ Methodology

The analytical results for this report are presented by analytical test. Each set of data includes sample identification information, analytical results and the appropriate detection limits.

Analyses requested:

ICP Metals - 6010 Super Trace - Lead, Chromium, Silver

Mercury - 7471 - CV Chromium Hex - 7196

Deviation from Request:

None



Bechtel Hanford Incorporated

March 28, 2000

Quote Number: 34636

SDG: W03069

Page 2

IV. Definitions

The following codes are used to denote laboratory quality control samples and can be found in the data summary section of this report:

OCBLK- Quality Control Blank, Method Blank

QCLCS- Quality Control Laboratory Control Sample, Blank Spike

MS- Matrix Spike.

MSD- Matrix Spike Duplicate.

V. Comments

General:

The term "Detection Limit" used in the analytical data reports refers to either the lab's standard reporting limits or contractually required reporting limits, whichever is applicable.

Please refer to the attached cross-reference table for the standard preparation methods used at Quanterra, St. Louis.

Due to the high Rad levels for these samples, limited volume was sent. The lab was not able to perform a MS/MSD for the ICP metals.

Data was transmitted by facsimile on 3/27/00.

Metals:

A Laboratory Control Sample, Laboratory Control Sample Duplicate and Method Blank were analyzed with each preparation batch per the protocol for this analysis. There was insufficient volume to do a MS/MSD.

There were no other comments or non-conformances associated with this SDG.

Hex Chromium:

A Lab Control Sample, Matrix Spike, Matrix Duplicate and Method blank were analyzed with the preparation blank for this analysis.

Due to the limited sample volume, this analysis was done using less than the method required sample volume of 20 grams.



Bechtel Hanford Incorporated

March 28, 2000

Quote Number: 34636

SDG: W03069

Page 3

I certify that this Summary is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Reviewed and approved:

Marti Ward

St. Louis Project Manager

NOTE (S):

SAMPLE SUMMARY

F0B290160

WO #	Sample#	CLIENT SAMPLE ID	DATE	TIME
D94HN	001	BOTBY8-A/BOTBY8-B	12/17/98	10:45
D94J1	002	BOTCOO-A/BOTCOO-B	12/17/98	11:05
D94J5	003	B0TDJ2-A/B0TDJ2-B	12/21/98	11:35
D94JA	004	BOTDJ3-A/BOTDJ3-B	12/21/98	12:00

⁻ The analytical results of the samples listed above are presented on the following pages.

⁻ All calculations are performed before rounding to avoid round-off errors in calculated results.

⁻ Results noted as "ND" were not detected at or shove the stated limit.

⁻ This report must not be reproduced, except in full, without the written approval of the laboratory.

⁻ Results for the following parameters are never reported on a dry weight basis: color, corrogivity, density, flashpoint, ignisability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, apot tests, solids, solubility, temperature, viscosity, and weight.

METHODS SUMMARY

F0B290160

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Hexavalent Chromium	SW846 7196A	SWB46 7196
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 3050B
Mercury in Solid Waste (Manual Cold-Vapor)	SW846 7471A	SW846 7471A
Percent Moisture	MCAWW 160.3 MOD	MCAWW 160.3 MOD

References:

MCAWW	"Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.
S W846	"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods". Third Edition, November 1986 and its undates

PSL20300 Page 1 QUANTERRA INCORPORATED Run Date: 3/01/00 CLIENT ANALYSIS SUMMARY Time: 14:46:57 Quanterra - St. Louis User Id.: SEITHELK

QUOTE/SAR #: 34636

LAB ID: F-0B290160-001

ANALYTICAL DUE DATE: 3/15/00N

RECEIVING DATE: 2/17/00 SAMPLING DATE: 12/17/98

REPORT DUE DATE: 3/15/00 PRIORITY: 15

SAMPLING TIME: 10:45

8:45

WORK ORDER: D94HN

RECEIVING TIME:

SDG# : W03069

CLIENT: 127642 BECHTEL HANFORD, INC.

PROJECT MANAGER: MARTI WARD

PROJECT #: 100-N CRIB

Bechtel Hanford, Inc.

P.O. NUMBER: MRC-SBB-A-19981

SITE: B00-032

AMOUNT REC"D: 20MLV

STORAGE LOC: V1F

LOT COMMENTS: VERY HIGH RAD LEVELS!!!!!

MATRIX: SOLID

REPORT TO:

SAMPLE ID: BOTBY8-A

QC PACKAGE: Special Report - see checklist

SAMPLE COMMENTS:

RUN DUP CR-6

Beginning Depth: .00 Ending Depth:

.00

Q@@HIGH RAD LEVELS@@@@

WRK REQUEST EXTRACTION ANALYSIS ***** ANALYSIS ***** <u>LOC</u> DATE EXP DATE EXP DATE

Inductively Coupled Plasma (6010B) 06 2/29/00 0/00/00 6/15/99 METALS, TOTAL - Soils

M6010 S AG, CR, PB

Protocol: A QC Program: STANDARD TEST SET (A-46-QO-01) D94HN

Mercury (7471A, Cold Vapor) - Solids 06 2/29/00 0/00/00 1/14/99

METALS, TOTAL (Method Exclusive) - Solids

M7471_S HG

(A-70-09-01) D94HN Protocol: A QC Program: STANDARD TEST SET

Moisture, Percent (160.3) 06 2/29/00 0/00/00 3/26/99

NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION

(A-88-WM-01) D94HN-1-04 Protocol: A QC Program: STANDARD TEST SET

Chromium, Hexavalent (7196A) 06 2/29/00 3/26/99 3/30/99

LEACHATE, DI (Routine)

(A-82-EA-01) D94HN-1-05 Protocol: A QC Program: STANDARD TEST SET

PSL20300

QUANTERRA INCORPORATED Run Date: 3/01/00
CLIENT ANALYSIS SUMMARY Time: 14:46:57
Quanterra - St. Louis User Id.: SEITHELK Page 1

CLIENT: 127642 BECHTEL HANFORD, INC. OUOTE/SAR #: 34636

LAB ID: F-0B290160-001-D PROJECT MANAGER: MARTI WARD PROJECT #: 100-N CRIB WORK ORDER: D94HN MSD

REPORT TO: Bechtel Hanford, Inc. RECEIVING DATE: 2/17/00

P.O. NUMBER: MRC-SBB-A-19981 SAMPLING DATE: 12/17/98

ANALYTICAL DUE DATE: 3/15/00N SITE: B00-032 REPORT DUE DATE: 3/15/00 AMOUNT REC"D: 20MLV

STORAGE LOC: V1F PRIORITY: 15

LOT COMMENTS: VERY HIGH RAD LEVELS!!!! SAMPLING TIME: 10:45 RECEIVING TIME: 8:45

MATRIX: SOLID SAMPLE ID: BOTBY8-A

QC PACKAGE: Special Report - see checklist SDG# : W03069

SAMPLE COMMENTS:

RUN DUP CR-6 @@@@HIGH RAD LEVELS@@@@@

Beginning Depth: .00 Ending Depth: .00

WRK REQUEST EXTRACTION ANALYSIS ***** ANALYSIS **** TOC DATE EXP DATE EXP DATE

Inductively Coupled Plasma (6010B) 06 2/29/00 0/00/00 6/15/99

METALS, TOTAL - Soils

M6010_S AG, CR, PB

(A-46-QO-01) D94HN Protocol: A QC Program: STANDARD TEST SET

Mercury (7471A, Cold Vapor) - Solids 06 2/29/00 0/00/00 1/14/99

METALS, TOTAL (Method Exclusive) - Solids

M7471_S HG

(A-70-09-01) D94HN Protocol: A QC Program: STANDARD TEST SET

PSL20300 Page 1 CLIENT ANALYSIS SUMMARY
Quanterra - C-CLIENT ANALYSIS SUMMARY

Quanterra - St. Louis

User Id.: SEITHELK

Run Date: 3/01/00

CLIENT: 127642 BECHTEL HANFORD, INC.

OUOTE/SAR #: 34636 LAB ID: F-0B290160-001-S

PROJECT MANAGER: MARTI WARD

PROJECT #: 100-N CRIB

WORK ORDER: D94HN MS

REPORT TO: Bechtel Hanford, Inc.

RECEIVING DATE: 2/17/00

P.O. NUMBER: MRC-SBB-A-19981

SAMPLING DATE: 12/17/98

SITE: B00-032 AMOUNT REC"D: 20MLV ANALYTICAL DUE DATE: 3/15/00N REPORT DUE DATE: 3/15/00

PRIORITY: 15

STORAGE LOC: VIF

SAMPLING TIME: 10:45

MATRIX: SOLID

LOT COMMENTS: VERY HIGH RAD LEVELS!!!!

RECEIVING TIME:

8:45

SAMPLE ID: BOTBY8-A

QC PACKAGE: Special Report - see checklist

SDG# : W03069

SAMPLE COMMENTS:

@@@@HIGH RAD LEVELS@@@@@

RUN DUP CR-6

Beginning Depth: .00 Ending Depth:

.00

REQUEST EXTRACTION ANALYSIS

***** ANALYSIS *****

WRK LOC DATE

EXP DATE EXP DATE

Inductively Coupled Plasma (6010B) 06 2/29/00 0/00/00 6/15/99

METALS, TOTAL - Soils

M6010_S AG, CR, PB

(A-46-QO-01) D94HN Protocol: A QC Program: STANDARD TEST SET

Mercury (7471A, Cold Vapor) - Solids 06

METALS, TOTAL (Method Exclusive) - Solids

2/29/00 0/00/00 1/14/99

M7471 S HG

(A-70-09-01) D94HN Protocol: A QC Program: STANDARD TEST SET

Chromium, Hexavalent (7196A)

06 2/29/00 3/26/99 3/30/99

LEACHATE, DI (Routine)

(A-82-EA-01) D94HN-1-06 Protocol: A QC Program: STANDARD TEST SET

Page 1

QUANTERRA INCORPORATED Run Date: 3/01/00 CLIENT ANALYSIS SUMMARY Time: 14:46:57 Quanterra - St. Louis User Id.: SEITHELK

CLIENT: 127642 BECHTEL HANFORD, INC.

CLIENT: 127642 BECHTEL HANFORD, INC.

PROJECT MANAGER: MARTI WARD

PROJECT #: 100-N CRIB

REPORT TO:

Bechtel Hanford, Inc.

P.O. NUMBER: MRC-SBB-A-19981

SITE: B00-032

AMOUNT REC"D: 20MLV

QUOTE/SAR #: 34636

WORK ORDER: 94J1

RECEIVING DATE: 2/17/00

SAMPLING DATE: 12/17/98

ANALYTICAL DUE DATE: 3/15/00N

AMOUNT REC"D: 20MLV

STORAGE LOC: V1F

LOT COMMENTS: VERY HIGH RAD LEVELS!!!! SAMPLING TIME: 11:05
MATRIX: SOLID RECEIVING TIME: 8:45

SAMPLE ID: BOTCOO-A

QC PACKAGE: Special Report - see checklist SDG# : W03069

SAMPLE COMMENTS:

200 HIGH RAD LEVELS 200

Beginning Depth: .00 Ending Depth: .00

REPORT DUE DATE: 3/15/00

PRIORITY: 15

	WRK	REQUEST	EXTRACTION	analysis
***** ANALYSIS *****	LOC	DATE	EXP DATE	EXP DATE

Inductively Coupled Plasma (6010B) 06 2/29/00 0/00/00 6/15/99

METALS, TOTAL - Soils

M6010 S AG, CR, PB

(A-46-QO-01) D94J1 Protocol: A QC Program: STANDARD TEST SET

Mercury (7471A, Cold Vapor) - Solids 06 2/29/00 0/00/00 1/14/99

METALS, TOTAL (Method Exclusive) - Solids

M7471 S HG

(A-70-09-01) D94J1 Protocol: A QC Program: STANDARD TEST SET

Moisture, Percent (160.3) 06 2/29/00 0/00/00 3/26/99

NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION

(A-88-WM-01) D94J1-1-02 Protocol: A QC Program: STANDARD TEST SET

06 2/29/00 3/26/99 3/30/99 Chromium, Hexavalent (7196A)

LEACHATE, DI (Routine)

(A-82-EA-01) D94J1-1-03 Protocol: A QC Program: STANDARD TEST SET

PSL20300 Page 1 QUANTERRA INCORPORATED Run Date: 3/01/00 CLIENT ANALYSIS SUMMARY Time: 14:46:57 Quanterra - St. Louis User Id.: SEITHELK

CLIENT: 127642 BECHTEL HANFORD, INC.

PROJECT MANAGER: MARTI WARD

PROJECT #: 100-N CRIB

REPORT TO: Bechtel Hanford, Inc.

P.O. NUMBER: MRC-SBB-A-19981

SITE: B00-032

AMOUNT REC"D: 20MLV

STORAGE LOC: V1F

LOT COMMENTS: VERY HIGH RAD LEVELS!!!!!

MATRIX: SOLID SAMPLE ID: BOTDJ2-A

QC PACKAGE: Special Report - see checklist

SAMPLE COMMENTS:

200 HIGH RAD LEVELS 2020

Beginning Depth: .00 Ending Depth: .00

QUOTE/SAR #: 34636

LAB ID: F-0B290160-003

WORK ORDER: D94J5

RECEIVING DATE: 2/17/00

SAMPLING DATE: 12/21/98

ANALYTICAL DUE DATE: 3/15/00N REPORT DUE DATE: 3/15/00

PRIORITY: 15

SAMPLING TIME: 11:35

8:45

RECEIVING TIME:

SDG# : W03069

WRK REQUEST EXTRACTION ANALYSIS ***** ANALYSIS ***** LOC DATE EXP DATE EXP DATE

Inductively Coupled Plasma (6010B) 06 2/29/00 0/00/00 6/19/99

METALS, TOTAL - Soils M6010 S AG, CR, PB

(A-46-QO-01) D94J5 Protocol: A QC Program: STANDARD TEST SET

Mercury (7471A, Cold Vapor) - Solids 06 2/29/00 0/00/00 1/18/99

METALS, TOTAL (Method Exclusive) - Solids

M7471_S HG

(A-70-09-01) D94J5 Protocol: A QC Program: STANDARD TEST SET

Moisture, Percent (160.3) 06 2/29/00 0/00/00 3/30/99

NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION

(A-88-WM-01) D94J5-1-02 Protocol: A QC Program: STANDARD TEST SET

Chromium, Hexavalent (7196A) 06 2/29/00 3/30/99 4/03/99

LEACHATE, DI (Routine)

(A-82-EA-01) D94J5-1-03 Protocol: A QC Program: STANDARD TEST SET

PSL20300 QUANTERRA INCORPORATED Run Date: 3/01/00
Page 1 CLIENT ANALYSIS SUMMARY Time: 14:46:57
Quanterra - St. Louis User Id.: SEITHELK

CLIENT: 127642 BECHTEL HANFORD, INC.

PROJECT MANAGER: MARTI WARD

PROJECT #: 100-N CRIB

REPORT TO: Bechtel Hanford, Inc.

P.O. NUMBER: MRC-SBB-A-19981

SITE: B00-032

AMOUNT REC"D: 20MLV

STORAGE LOC: V1F
LOT COMMENTS: VERY HIGH RAD LEVELS!!!!! SAMPLING TIME: 12:00
RECEIVING TIME: 8:45

SAMPLE ID: BOTDJ3-A

QC PACKAGE: Special Report - see checklist SDG# : W03069

SAMPLE COMMENTS:

@@@ HIGH RAD LEVELS @@@

Beginning Depth: .00 Ending Depth: .00

QUOTE/SAR #: 34636

LAB ID: F-0B290160-004

WORK ORDER: D94JA

RECEIVING DATE: 2/17/00

SAMPLING DATE: 12/21/98

ANALYTICAL DUE DATE: 3/15/00N REPORT DUE DATE: 3/15/00

**** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Inductively Coupled Plasma (6010B) METALS, TOTAL - Soils M6010 S AG,CR,PB	06	2/29/00	0/00/00	6/19/99
(A-46-Q0-01) D94JA Protocol: A	ÕC 1	Program: ST	TANDARD TEST	SET
Mercury (7471A, Cold Vapor) - Solids METALS TOTAL (Method Exclusive) - Solid	06	2/29/00	0/00/00	1/18/99

METALS, TOTAL (Method Exclusive) - Solids

M7471 S HG

(A-70-09-01) D94JA Protocol: A QC Program: STANDARD TEST SET

06 2/29/00 0/00/00 3/30/99 Moisture, Percent (160.3)

NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION

(A-88-WM-01) D94JA-1-02 Protocol: A QC Program: STANDARD TEST SET

Chromium, Hexavalent (7196A) 06 2/29/00 3/30/99 4/03/99

LEACHATE, DI (Routine)

(A-82-EA-01) D94JA-1-03 Protocol: A QC Program: STANDARD TEST SET

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BHI-EE-011 (10/99)

Matrix* DS = Orum Solids DL = Drum Liquids SO = Solid = Tissue Date/Time Date/Time Received By Relinquished By = Wipe = Sludge = Water = Liquid Received By Relinguished By Date/Time Date/Time O = Oil Vegetation X = Other = Air Date/Time Disposed By Disposal Method (e.g., Return to customer, per lab procedure, used in process) FINAL SAMPLE

All samples containing hazardous materiels shall be picked up by requestor and returned to parent container or site of origin.

DISTRIBUTION: White - Remain with Samples Color - Customer

BC-6000-828 (04/98)

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372-1878

Preservative

None

None

None

None

None

None

None

None

DISPOSITION

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(Shipper may describe package in detail on one of the unused lines above) 12. This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. Certifier's Signature On behalf of DOE-RL Date Organization Certifier's Signature On behalf of DOE-RL Date Organization Complete Cost Code (Inc. End Funct Organization) Comp	I DUY COOLER STRONG THE		Ther 4	7914 (2-13)	7,60-60			
(Shipper may describe package in detail on one of the unused lines above) ToTALS 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	in which Box	17 GW3137	iArf 4,.	7914 C2-13 "Aug. Sv	7,60-60			5 3-5-4
Transportation according to the applicable regulations of the Department of Transportation. Certifler's Signature On behalf of DOE-RL Date Organization Surface Dose Rate of Package Dose Rate @ 1 Meter from Surface Smears of Outer Container of Package	in which Box thanks JARS BUBBLE WEAFFE ON I	CULLE HOLY	AAGE 4, - Cu- (AGEN), FA	iglaci-is Buc Sv Cheu m	7,60-60 - *16,0 1711			5 3-5-1
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Table 5-8. 116-N-3 Crib Surface Sample Analytical Laboratory Results.

·			<u>*</u>	
Sample number	BOTBYS	BOTBY9	BOTCOO	BOTC01
Location/description	NE Hatch	SE Hatch	SW Hatch	NW Hatch
Easting (m)	571,930.75	571,944.29	571,894.39	571,880.86
Northing (m)	149,618,82	149,586.58	149,565.63	149,597.87
Distance from crib along centerline of trench (m)	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sample date	12/17/98	12/17/98	12/17/98	12/17/98
Mean elevation of sample (m asl)	135.43	135.43	135.43	135.59
Lift thickness (m)	0.08	0.08	0.08	0.08
Mean depth (m)	0.04	0.04	0.04	0.04
· · · · · · · · · · · · · · · · · · ·	Radioisoropes	(pCVg)	<u> </u>	
Americium-241	4,150 X	6,670	9,010 🗶	41,100
Cesium-137	96,200 X	100,000	159,000 🗙	301,000
Cobalt-60	317,000 X	558,000	715,000 X	2,250,000
Europium-152	บ	บ	ប	U
Europium-154	U	U	Ū	ΰ
Europium-155	U	Ü	บ	U
Gross alpha	9,990	15,000	20,900	84,600
Gross beta	444,000	665,000	904,000	2,840,000
Plutonium-238	1,330	2,090	2,550	9,620
Plutonium-239/240	5,250 X	8,690	12,700 🔀	52,100
Potassium-40	U	U	U	Ü
Strontium-89/90	12,200 🗙	8,970	16,500 🗶	55,000
Uranium-235	ប	ប	ប	U
Uranium-238	Ū	U	υ	υ
	TCLP Metals	(mg/L)		
Arsenic	- 0.375 U	0.375 U	0.375 U	0.375 U
Barium	0.811	0.934	0.994	0.749
Cadmium	0.0188 U	0.D188 U	0.01 88 U	0.0272
Chromium	0.0375 U	0.0375 U	0.0455	0.0375 U
Lead	0.375 U	0.375 U	0.375 U	0.375 U
Mercury	0.0014 U	0.0014 U	0.0014 U	0.0014 U
Selenium	0.375 U	0.375 U	0.375 U	0.375 U
Silver	0.0953	0.085	0.0984	0.102

U = Result was below detection limit

use 5 highest COA TZIINX3200

Table 5-7. 116-N-1 Trench Surface Sample Analytical Laboratory Results.

Sample number	B0TDJ4	B0TDJ3	B0TDJ2	BOTTOJI		
Location/description	Leg B, Hatch 4	Leg C, Hatch 5	Leg D, Hatch 7	Leg E, Hatch 10		
Easting (m)	571,566.56	571,573.46	571,645.47	571,720.12		
Northing (m)	149,874.66	149,907.47	149,927.47	150,034.30		
Distance from crib along centerline of trench (m)	147.40	187.34	265.87	402.33		
Sample date	12/21/98	12/21/98	12/21/98	12/21/98		
Mean elevation of sample (m asl)	134.82	134.82	134.82	134.82		
Lift thickness (m)	0.08	0.08	0.08	0.08		
Mean depth (m)	0.04	0.04	0.04	0.04		
L	Radioisotopes ((pCi/g)	<u> </u>			
Americium-241	44,700	19,900 🗴	16,000 大	18,700		
Cesium-137	412,000	251,000 📐	333,000 ×	429,000		
Cobalt-60	2,754,000	1,003,000 人	1,032,000 X	1,003,000		
Europium-152	U	υ	υ	ប		
Europium-154	U	Ü	Ü	ŭ		
Europium-155	. U	บ	ט	Ü		
Gross alpha	85,000	38,500	34,000	34,800		
Gross beta	3,100,000	1,300,000	1,390,000	1,470,000		
Plutonium-238	10,500	2,980	5,310	4,700		
Plutonium-239/240	52,200	18,400 火	18,200 K	15,800		
Potassium-40	U	U	U	Ŭ		
Strontium-89/90	132,000	26,800 ×	36,100 ×	24,900		
Uranium-235	U	บ	U	U		
Uranium-238	Ŭ	Ū	Ų	ַ		
	TCLP Metals (mg/L)	· ·			
Arsenic	0.375 U	0.375 ปี	0.500 U	0.500 U		
Barium	0.188 U	0.937	0.754	0.366		
Cadmium	0.140	0.0188 U	0.0562	0.0733		
Chromium	0.0375 U	0.137	0.405	0.137		
Lead	0.375 U	0.375 U	0.500 ป	0.500 U		
Mercury	0.0014 U	0.0014 U	0.0014 U	0.0014 U		
Selenium	0.375 U	0.375 U	0.500 U	0.500 U		
Silver	0.0945	0.0902	0.102	0.104		

U = result was below detection limit



000047

Condition Upon Receipt Variance Report St. Louis Laboratory Time: /)24K RFA/COC Numbers: Condition/Variance (Check all that apply): 8. Sample received broken/leaking. Sample ID on container does not match sample ID 2. Sample received without proper preservative. on paperwork. Explain: ___ Cooler temperature not within 4°C ± 2°C Record temperature:__ All coolers on airbill not received with shipment. other: 10. Sample volume insufficient for analysis 11. 3. Sample received in improper container. Other (explain below) 4. Sample received without proper paperwork. Explain: 5. Paperwork received without sample. 6. No sample ID on sample container. 7. Custody tape disturbed/broken/missing/not tamper evident type (circle all that apply). No variances were noted during sample receipt. Cooler Temperature Upon Receipt in *C: Temperature Variance Does Not Affect the Following Analyses: Notes: tich RAO levels Corrective Action: Client's Name: informed verbally on: By: Client's Name: informed in writing on: Sample(s) processed "as is". Sample(s) on hold until: If released, notify: Sample Control Supervisor Rev Project Management Review:

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

SL-ADMIN-0004, Revised 02/01/00

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			No. of Container(s)	-										
Special Handling and/or Sto	Fage		Volume	-10%	R. F. 15.00]				
W03069 F	SAMPLE ANAI	LYSIS		See item (1) in Special Instructions										
Sample No.	Matrix *	Sample Date	Sample Time		新田城				MA:		4		NEW YORK	
BOTBY8-B	Soil	12-17-9	18 1045	×	IX	ata	ah							
вотсоо-в	Soil	12-17-	98 1105	1	<u> </u>	I'								
BOTDJ2-B	Soil	12-21-	98 1135	X		7								
BOTDJ3-B	Soil	12-21-	98 1200	X	<u></u>	1/								
						7								
CHAIN OF POSSESSIO		Sign/Pris			SPEC	ial instr	UCTIO	INS					Matrix *	
Relinquished By JEALE MS.L Betinquished By Relinquished By	Date/Time	Received By Received By Received By	2/17/	NOTIONE He/Time CO 10'	OU/M			pic Uranium; Aroeri n-244 (Add-on) {C¤				क्रां (४ तु	S-Said SE-Sofineral SO-Safid S-Safige W-s-Water O-OR A-Ale DS-Drown Salida UK-Drown Lapsid T-Tigore	
Reliaguished By Reliaguished By Reliaguished By Reliaguished By RED EX	Date/Time 3 7 0	Received By	Ex 3-17-	te/Time // te/Time ###################################									Wi-Wipe L-Lippid V-Vegetnian X-Other	
LABORATORY Received B	у			Tit	le					·	D	ate/Time		
SECTION FINAL SAMPLE Disposal M DISPOSITION	ethod					Dispos	sed By			- <u> </u>	Ď	ate/Time		

BHI-EE-011 (10/99)



000173

					Lot No 2001
		-	pon Receipt Va		ce Report W03060
	$\widehat{}$) or c	Louis Laborat	tory	
Client	ℯ┽	Chland	Date	.3	:20-00 time:0845
		34636	Initi	ated b	
Shipp	~	Tadinia (C)			Numbers: 800-032-02
		Variance (Check all that apply):	- · - · ·		
1.		Sample received broken/leaking.	8.		Sample ID on container does not match sample ID
2.		Sample received without proper preservative.			on paperwork. Explain:
1		☐ Cooler temperature not within 4·C ± 2·C			
		Record temperature:			
1		□ pH	9.		All coolers on airbill not received with shipment.
		Other:	10.		Sample volume insufficient for analysis
3.		Sample received in improper container.	11.		Other (explain below)
4.	□	Sample received without proper paperwork. Expla	in:		
			_ 		
5 .		Paperwork received without sample.			
6.		No sample ID on sample container.		•	
7.		Custody tape disturbed/broken/missing/not tamper	evident type (circle a	il that	apply).
				•	
X .		o variances were noted during sample receipt.	۵		
风"		poler Temperature Upon Receipt in °C:			
Temp Notes:		e Variance Does Not Affect the Following Analyse			
140tes	· 				
Corre	ective .	Action:			
	4	Client's Name:	Informed verbally or	n:	Ву:
	•	Client's Name:	Informed in writing	on:	Ву
_					
_		Sample(s) processed "as is".			
	!	Sample(s) on hold until:			If released, notify:
		$\mathcal{A}(\mathcal{A}(\mathcal{A}))$	~	2	-20-00
Samp	ie Con	trol Supervisor Review: flords start	Da Da	1e: 🔾 2	20.00
Projec	ет Мал	agement Review: MWar	Date:		<u> </u>

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

SL-ADMIN-0004, Revised 02/01/00

Client Sample ID: BOTBY8-A/BOTBY8-B

TOTAL Metals

Matrix....: SOLID

Lot-Sample #...: F0B290160-001

Date Sampled...: 12/17/98 Date Received..: 02/17/00

* Moisture....: 0.73

PARAMETER	RESULT	REPORTING LIMIT UNITS	METHOD	PREPARATION- WORK ANALYSIS DATE ORDER #
Prep Batch #.	: 0082202			
Chromium	4.8	1.0 mg/kg Dilution Factor: 1	SW846 6010B Initial Wgt/Vol: 1 g	03/22-03/23/00 D94HN108 Final Wgt/Vol.: 100 wL
		MDL 0.30		•
Lead	3.4 B	10.1 mg/kg	SW846 6010B	03/22-03/23/00 D94HN10C
		Dilution Factor: 1 MDL	Initial Wgt/Vol: 1 g	Final Wgt/Vol: 100 mL
Silver	ND	1.0 mg/kg	SW846 6010B	03/22-03/23/00 D94HN10F
		Dilution Factor: 1 MDL	Initial Wgt/Vol: 1 g	Final Wgt/Vol: 100 mL
Prep Batch #.	: 0082247			
Mercury	0.31	0.034 mg/kg	SW846 7471A	03/14-03/23/00 D94HN101
		Dilution Pactor: 1 MDL 0.0071	Initial Wgt/Vol: 0.6 g	Final Wgt/Vol 100 mL

Note(s):

B . Estimated result. Result is less than RL,

Client Sample ID: BOTCOO-A/BOTCOO-B

TOTAL Metals

Lot-Sample #...: F0B290160-002

Date Sampled...: 12/17/98

Date Received..: 02/17/00

Matrix....: SOLID

* Moisture....: 6.0

PARAMETER	RESULT	REPORTIN LIMIT	NG UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #	: 0082202					
Chromium	27.4	1.1	mg/kg	SW846 6010B	03/22-03/23/00	D94J1104
		Dilution Fac	tor: 1	Initial Wgt/Vol: 1 g	Final Wgt/Vol.	.: 100 mL
		MOL	: 0.32			
Lead	48.2	10.6	mg/kg	SW846 6010B	03/22-03/23/00	D94J1105
		Dilution Fac	ctor: 1	Initial Wgt/Vol: 1 g	Final Wgt/Vol.	.: 100 mL
		MDL	: 3.4			
Silver	ND	1.1	mg/kg	SW846 6010B	03/22-03/23/00	D94J1106
		Dilution Fac	ctor: 1	Initial Wgt/Vol: 1 g	Final Wgt/Vol.	.: 100 mL
		MDD	: 0.98			
Prep Batch #	: 0082247					
Mercury	0.79	0.035	mg/kg	SW846 7471A	03/14-03/23/00	D94J1101
-		Dilution Fac	ctor: 1	Initial Wgt/Vol: 0.6 g	Final Wgt/Vol.	.: 100 mL
		MDL	0.0074			

Results and reporting limits have been adjusted for dry weight.

NOTE (S):

Client Sample ID: BOTDJ2-A/BOTDJ2-B

TOTAL Metals

Lot | Sample #...: F0B290160-003

Date Sampled...: 12/21/98

Date Received..: 02/17/00

Matrix..... SOLID

* Moisture....: 10

		REPORTI	NG	Preparation- Work	
PARAMETER	RESULT	LIMIT	UNITS	METHOD	ANALYSIS DATE ORDER #
Prep Batch	#: 0082202				
Chromium	3260	1.1	mg/kg	SW846 6010B	03/22-03/23/00 D94J5104
		Dilution Fac	ctor: 1	Initial Wgt/Vol: 1 g	Final Wgt/Vol: 100 mL
		MDL.,	: 0.33		
Lead	161	11.1	mg/kg	SW846 6010B	03/22-03/23/00 D94J5105
		Dilution Fac	ctor: 1	Initial Wgt/Vol: 1 g	Final Wgt/Vol.: 100 mL
		MDL	: 3.6		
Silver	ND	1.1	mg/kg	SW846 6010B	03/22-03/23/00 D94J5106
		Dilution Pac	ctor: 1	Initial Wgt/Vol: 1 g	Final Wgt/Vol.: 100 mL
		MD5	: 1.0		
Prep Batch	#: 0082247		·		
Mercury	1.4	0.037	ng/kg	SW846 7471A	03/14-03/23/00 D94J5101
	•	Dilution Fa	ctor: 1	Initial Wgt/Vol: 0.6 g	Final Wgt/Vol: 100 mL
		И ДЪ	1 0.0078		

Results and reporting limits have been adjusted for dry weight.

NOTE(S):

Client Sample ID: BOTDJ3-A/BOTDJ3-B

TOTAL Metals

Lot-Sample #...: F0B290160-004

Date Sampled...: 12/21/98

Date Received..: 02/17/00

Matrix....: SOLID

% Moisture....: 14

		REPORTING		PREPARATION- WORK
PARAMETER	RESULT	LIMIT UNI	TS METHOD	ANALYSIS DATE ORDER #
Prep Batch	: 0082202			
Chromium	1300	1.2 mg/	kg SW846 6010B	03/22-03/23/00 D94JA104
		Dilution Factor: 1	Initial Wgt/Vol: 1 g	Final Wgt/Vol: 100 mL
		MDL., 0	. 35	
Lead	56.2	11.6 mg/	kg SW846 6010B	03/22-03/23/00 D94JA105
		Dilution Factor: 1	Initial Wgt/Vol: 1 g	Final Ngt/Vol: 100 mL
		MDL.,	. 8	
Silver	ND	1.2 mg/	kg SW846 6010B	03/22-03/23/00 D94JA106
		Dilution Factor: 1	Initial Wgt/Vol: 1 g	Final Wgt/Vol: 100 mL
		МОТ1	.1	
Prep Batch	: 00B2247			
Mercury	0.92	0.039 mg/	kg SW846 7471A	03/14-03/23/00 D94JA101
		Dilution Factor: 1	Initial Wgt/Vol: 0.6	g Final Wgt/Vol.: 100 mL
		MDL 0	.0081	

Results and reporting limits have been adjusted for dry weight.

Note(s):

METHOD BLANK REPORT

TOTAL Metals

Client Lot #	: F0B290160			Matr	ix so	LID
1		REPORTIN			PREPARATION-	WORK
PARAMETER	RESULT	LIMIT	UNITS	METHOD	ANALYSIS DATE	ORDER #
MB Lot-Sample #	: F0C220000-	202 Prep B	atch #:	: 0082202		
Chromium	ND	1.0	mg/kg	SW846 6010B	03/22-03/23/00	D9X1G104
		Dilution Fac	tor; 1	Initial Wgt/Vol: 1 g	Final Wgt/Vol.	.: 100 mL
Lead	0.108 B	10.0	mg/kg	SW846 6010B	03/22-03/23/00	D9X1G101
		Dilution Fac	tor: 1	Initial Wgt/Vol: 1 g	Final Wgt/Vol.	.: 100 mL
Silver	ND	1.0	mg/kg	SW846 6010B	03/22-03/23/00	D9X1G102
		Dilution Fac	tor: 1	Initial Wgt/Vol: 1 g	Final Wgt/Vol.	.: 100 mL
MB Lot-Sample #). FACTORAD.	.247 Dren P	tatoh #	• NGR7247		
Mercury	ND	0.033	mg/kg	SW846 7471A	03/22-03/23/00	D9X7N101
		Dilution Fac				

Calculations are performed before rounding to avoid round-off errors in calculated results.

NOTE (S):

B Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Lot-Sample #...: F0B290160

Matrix..... SOLID

PARAMETER Chromium	SPIKE AMOUNT 99.4 99.4	94.6 96.5	UNITS mg/kg mg/kg lution Pac	PERCNT RECVRY 95 97 etor: 1	2.0	METHOD SWB46 6010B SWB46 6010B Initial Wgt/Vol: 1 g	PREPARATION- PREP ANALYSIS DATE BATCH # 03/22-03/23/00 0082202 03/22-03/23/00 0082202 Final Wgt/Vol: 100 mL
Lead	97.8 97.8	100	mg/kg mg/kg lution fac	101 103 ctor: 1	1.5	SW846 6010B SW846 6010B Initial Wgt/Vol: 1 g	03/22-03/23/00 0082202 03/22-03/23/00 0082202 Pinal Wgt/Vol: 100 mL
Silver	107 107	111	mg/kg mg/kg Nution fac	105 103 ctor: 1	1.7	SW846 6010B SW846 6010B Initial Wgt/Vol: 1 g	03/22-03/23/00 0082202 03/22-03/23/00 0082202 Finel Wgt/Vol.: 100 mL
Mercury	3.13 3.13	3.49	mg/kg mg/kg Nution Fac	106 112 ctor: 1	5.1	SW846 7471A SW846 7471A Initial Wgt/Vol: 0.6	03/14-03/23/00 0082247 03/14-03/23/00 0082247 Final Wgt/Vol: 100 mL

NOTE (S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client Sample ID: BOTBY8-A/BOTBY8-B

General Chemistry

Lot-Sample #...: F0B290160-001

Work Order #...: D94HN

Matrix....: SOLID

Date Sampled...: 12/17/98

Date Received..: 02/17/00

* Moisture....: 0.73

PARAMETER Hexavalent Chromium	RL 2.0 Dilution Facto	 METHOD SW846 7196A Initial Wgt/Vol: 1.03 9	PREPARATION- ANALYSIS DATE 03/24/00 Final Mgt/Vol	PREP BATCH # 0084337
Percent Moisture	0.10 Dilution Facto	 MCAWW 160.3 MOD Initial Wgt/Vol: 0	03/08-03/09/00 Final Wgt/Vol	

NOTE (S):

RL Reporting Limit

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: F0B290160

Matrix..... SOLID

Date Sampled...: 12/17/98

Date Received..: 02/17/00

Percnt Moisture: 0.0

	SAMPLE	SPIKE	MEASURED		PERCENT]	PREPARATION-	PREP
PARAMETER	AMOUNT	AMT	AMOUNT	UNITS	RECOVERY	METHOD	ANALYSIS DATE	BATCH #
Hexavalent	Chromium		Work Ord	ler #:	D94HN106	MS Lot-Sa	ample #: F0B29	0160-001
	ND	10.1	7.92	mg/kg	79	SW846 7196A	03/24/00	0084337
			Dilution	Factor: 1	Tairie	1 Wat/Wal, 1 01 a	Pinel Wat /Val	

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F0B290160 Work Order #...: D94HN-SMP Matrix.....: SOLID

D94HN-DUP

Date Sampled...: 12/17/98 Date Received..: 02/17/00

* Moisture....: 0.73

DUPLICATE RPD PREPARATION-PREP PARAM RESULT RESULT UNITS RPD LIMIT METHOD ANALYSIS DATE BATCH # Hexavalent Chromium SD Lot-Sample #: F0B290160-001 ND ND 0 (0-35) SW846 7196A 03/24/00 0084337 mg/kg

Dilution Factor: 1 Initial Wgt/Vol: 1.03 g Final Wgt/Vol..: 0

Client Sample ID: BOTCOO-A/BOTCOO-B

General Chemistry

Lot-Sample #...: F0B290160-002 Work Order #...: D94J1

02 Work Order #...: D94J1
Date Received..: 02/17/00

Matrix....: SOLID

Date Sampled...: 12/17/98

* Moisture....: 6.0

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Hexavalent Chromium		0.42 Dilution Facto		SW846 7196A Initial Wgt/Vol: 5.05 g	03/24/00 Final Wgt/Vol.	0084337
Percent Moisture		0.10 Dilution Facto		MCANW 160.3 MOD Initial Wgt/Vol:	03/08-03/09/00 Final Wgt/Vol	•

NOIR(S):

RL Reporting Limit

Client Sample ID: BOTDJ2-A/BOTDJ2-B

General Chemistry

Lot-Sample #...: F0B290160-003

Work Order #...: D94J5
Date Received..: 02/17/00

Matrix..... SOLID

Date Sampled...: 12/21/98

* Moisture....: 10

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Hexavalent Chromium		0.44 Dilution Factor		SW846 7196A Initial Wgt/Vol: 5.07 g	03/24/00 Final Wgt/Vol	0084337
Percent Moisture		0.10 Dilution Facto		MCAWW 160.3 MOD Initial Wgt/Vol:	03/08-03/09/00 Final Mgt/Vol	

NOTE(B):

RL Reporting Limit

Client Sample ID: BOTDJ3-A/BOTDJ3-B

General Chemistry

Lot-Sample #...: F0B290160-004

Work Order #...: D94JA

Matrix....: SOLID

Date Sampled...: 12/21/98

* Moisture....: 14

Date Received..: 02/17/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Hexavalent Chromium	ND	0.46 Dilution Facto		SW846 7196A Initial Wgt/Vol: 5.02 g	03/24/00 Final Wgt/Vol	0084337
Percent Moisture	13.9	0.10 Dilution Facto		MCAWW 160.3 MOD Initial Wgt/Vol:	03/08-03/09/00 Final Wgt/Vol.	

NOTE(S):

RL Reporting Limit

METEOD BLANK REPORT

General Chemistry

Client Lot # ...: F0B290160

Matrix....: SOLID

		REPORTING	3		PREPARATION-	PREP
PARAMETER_	RESULT	LIMIT	UNITS	METHOD	ANALYSIS DATE	BATCH #
Hexavalent	Chromium	Work Order	#: DA2VH101	MB Lot-Sample #:	F0C240000-337	
	ND	0.39	mg/kg	SW846 7196A	03/24/00	0084337
		Dilution Fact	or: 1	Initial Wgt/Vol: 20 g	Final Wgt/Vol	.: 0

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Client Lot # ...: F0B290160

Matrix..... SOLID

	SPIKE	MEASURED	PERCNT	PREPARATION - PREP
PARAMETER	AMOUNT	AMOUNT UNITS	RECVRY METHOD	ANALYSIS DATE BATCH #
Hexavalent	Chromium	Work Order	: DA2VH102 LCS Lot-Sam	ple#: F0C240000-337
	0.500	0.495 mg/kg	99 SW846 7196A	03/24/00 0084337

Dilution Factor: 1

Initial Wgt/Vol: 20 g

Final Wgt/Vol..: 0

NOTE (S):

Calculations are performed before rounding to avoid round-off errors in calculated results.